

**CLAIMS**

1. A flat security element, having a front side and a reverse side, and being relatively small in size, such as planchettes, characterized in that it includes, at least on one of its sides, at least one in-register authentication pattern and/or an authentication pattern resulting from the combination and/or superposition of a pattern on its front side and of a pattern on its reverse side, at least one of said authentication patterns being at least partly observable in transmitted light.
2. The security element as claimed in claim 1, characterized in that said in-register authentication pattern is in register either with respect to at least one portion of the shape of said security element or with respect to at least one portion of said patterns.
3. The security element as claimed in either of claims 1 and 2, characterized in that one of the patterns on the front side and/or on the reverse side is an in-register pattern.
4. The security element as claimed in one of claims 1 to 3, characterized in that said element includes, as pattern on the front side, at least one given color and as pattern on the reverse side at least one other given color, said authentication pattern observed in transmitted light being the color resulting from the color on the reverse side and the color on the front side.
5. The security element as claimed in the preceding claim 4, characterized in that the colors on the front and reverse sides are chosen from primary colors.
6. The security element as claimed in one of claims 1 to 5, characterized in

that one of said patterns is a pattern in the form of a geometric pattern, in particular in alphanumeric form, and/or in the form of a grid and/or lines and/or dots.

5 7. The security element as claimed in one of the preceding claims, characterized in that the dimensions of said element are between 0.5 and 6 mm, preferably between 1 and 4 mm.

10 8. The security element as claimed in one of the preceding claims, characterized in that it has a geometric shape, especially a circular, triangular, oval, square or rectangular shape, or a star shape, moon shape or a shape with curved edges.

15 9. The security element as claimed in one of the preceding claims, characterized in that it includes printing in an amount of 1 to 10 g/m<sup>2</sup> per side, preferably between about 2 and 5 g/m<sup>2</sup> per side, by dry weight.

20 10. The security element as claimed in one of the preceding claims, characterized in that said element includes patterns chosen from those that are visible in natural light or visible in UV light, that are luminescent, particularly fluorescent or phosphorescent, that are detectable by near or medium infrared radiation, that are thermochromic or piezochromic, that are based on DNA traces, that are optically variable, especially iridescent, or based on liquid crystals or on diffraction gratings or on moiré patterns or holograms, or that  
25 are electromagnetic, or combinations thereof.

11. The security element as claimed in claim 10, characterized in that said element includes, beneath or alongside said patterns, printing of electromagnetic, especially magnetic, character and, in particular, continuous

tracks or codes in the form of magnetic bits.

12. The security element as claimed in one of the preceding claims, characterized in that at least one of the patterns is visible to the naked eye.

5

13. The security element as claimed in one of the preceding claims, characterized in that said element includes chemical authentication reactants, or reactants that reveal a specific event.

10

14. The security element as claimed in one of the preceding claims, characterized in that said security element has a medium chosen from a fibrous sheet, a plastic film and a complex of these materials.

15

15. The security element as claimed in claim 14, characterized in that said medium has a low basis weight, in particular between 25 and 40 g/m<sup>2</sup>, and/or a thickness between about 50 and 110 µm.

20

16. The security element as claimed in either of claims 14 and 15, characterized in that said fibrous sheet of said medium is based on natural and/or synthetic fibers.

25

17. The security element as claimed in claim 16, characterized in that said fibrous sheet is a paper based on cellulose fibers refined to a low degree, of the overlay type.

18. The security element as claimed in either of claims 14 or 15, characterized in that the plastic film of said element is a polyester film.

19. The security element as claimed in one of claims 14 to 18, characterized

in that said element is based on a bulk-opacified medium or on a medium having, on at least one of its sides, at least partly, a full or partial color, opacifying or barrier layer or printing.

5 20. A security sheet comprising a fibrous substrate that includes several flat security elements of relatively small size, such as those described in claims 1 to 19.

10 21. The security sheet as claimed in the preceding claim 20, characterized in that said security elements are arranged in the form of a band and/or randomly distributed within said substrate.

22. A security document obtained from a sheet as claimed in either of claims 20 and 21.

15

23. A process for manufacturing security elements, which include an in-register pattern as described in claims 1 to 19, comprising the following steps:

- at least one portion of said authentication patterns is printed in one or more steps on one of the sides of its medium;

20 - at least one portion of said authentication patterns is printed, where appropriate on the other side, in one or more steps, either by being in register with respect to at least one portion of the shape of said element or by being in registration with respect to the previously printed portion.

25 24. The manufacturing process as claimed in claim 23, characterized in that the printed medium is cut in registration into security elements of the desired shape and such that at least the in-register pattern is wholly present on said element.